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<p>(21) International Application Number: PCT/US97/07885</p> <p>(22) International Filing Date: 6 May 1997 (06.05.97)</p> <p>(30) Priority Data: 60/017,905 6 May 1996 (06.05.96) US</p> <p>(71) Applicant: ADOBE SYSTEMS INCORPORATED (US/US); 1545 Charleston Road, P.O. Box 7900, Mountain View, CA 94043-7900 (US).</p> <p>(72) Inventors: SHERMAN, Phil; 8322 Hunts Point Place, Bellevue, WA 98004 (US). SHAW, Derek; 1st floor, 1014 15th Avenue East, Seattle, WA 98112 (US). SCHELD, Robert; 852 Northwest 90th Street, Seattle, WA 98117 (US).</p> <p>(74) Agent: LAND, John; Fish &amp; Richardson P.C., Suite 1400, 4225 Executive Square, La Jolla, CA 92037 (US).</p>		<p>(81) Designated States: JP, European patent (AT, BE, CH, DE, D ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).</p> <p>Published <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i></p> <p>97/44726</p>

(54) Title: INTERNET HYPERLINK DRAG AND DROP

## (57) Abstract

A method of creating document hyperlinks that allow a user to jump to another object or page within the same document or in another document all together - either on a local storage device, or on a remote storage device over a local area network, private wide area network or the Internet (200, 202, 204, 206, 208, 210, 212, 214, 216). Hyperlinks that access a document from the Internet are called Universal Resource Locator (URL) hyperlinks. An object is selected having a URL (200) and dragged (202, 204). The object is dropped and the system queries for the data type (206, 208). The object's URL is added to a URL list (210). A URL hyperlink can be created as a new object (216) or assigned to an existing object (214). With a figure-based hyperlink, a user can click anywhere within the figure's bounding box area to invoke a jump to the designated destination.

## INTERNET HYPERLINK DRAG AND DROP

### RELATED APPLICATION

This application is related to co-pending U.S. Patent Application Serial No. \_\_\_\_\_, entitled DOCUMENT INTERNET URL MANAGEMENT, assigned to the assignee of  
5 the present invention, filed on the same date as this application.

### BACKGROUND OF THE INVENTION

#### 1. *Field of the Invention*

This invention relates to computer software, particularly for use in wide area networks, including the Internet.

#### 10 2. *Description of Related Art*

The Internet worldwide web is an international electronic network comprising a vast number of interconnected electronic sites using common communication protocols. The architecture of the worldwide web (simply, "web") includes the use of web "pages" at a site to provide text, graphical, audio, and video information to users accessing that site.  
15 Selectable information is typically indicated by means of text or graphical images (e.g., icons or bitmapped images) which are associated with remote address pointers known as Universal Resource Locators (URL's), typically having the following form: "http://www.adobe.com".

Selection of text, an icon, or an image having a URL causes the user's program to access  
20 the web page designated by the URL. In addition, objects (e.g., data files, images, video clips, etc.) within a web page can also be assigned URL's, such that selection of the associated text, icon, or image causes the object to be transferred (downloaded) to the user's computer for playback or storage.

## SUMMARY OF THE INVENTION

The present invention embodies document hyperlinks that allow a user to jump to another object or page within the same document or in another document all together—either on a local storage device, or on a remote storage device over a local area network, private wide area network, or the Internet. Hyperlinks that access a document from the Internet are called URL hyperlinks.

A URL hyperlink in accordance with the present invention can be created as a new object (e.g., a graphics figure or text) or assigned to an existing object. With a figure-based hyperlink, a user can click anywhere within the figure's bounding box area to invoke a jump to the designated destination. In the preferred embodiment, with a text-based URL hyperlink, a jump will be invoked only when the user clicks on the specific characters that are associated with the URL hyperlink.

In the preferred embodiment, figure-based hyperlinks are signified by an icon or "badge" that appears in the lower left corner of a figure's bounding box. Text-based hyperlinks preferably are signified by using different text attributes and colors that the user defines—for instance, the user may want each hyperlink to be colored blue and underlined.

In the preferred embodiment, URL hyperlinks can be created three different ways:

- Figure Select and Assign – the user can select a figure or text within a figure and open a dialog to enter a URL for the hyperlink to use.
- Hyperlink Tool – the user can use a hyperlink tool from a Tool palette and draw an invisible rectangle around an area the user wishes to be a hyperlink. A dialog then opens to let the user define the URL to be used. The user can use this tool,

**BRIEF DESCRIPTION OF THE DRAWINGS**

FIGURE 1 is a graphical depiction of a browser page containing URL's, and a document page on which a URL hyperlink is to be created in accordance with the present invention.

FIGURE 2 is a flowchart showing a preferred method of creating a URL hyperlink by dragging and dropping.

Like reference numbers and designations in the various drawings indicate like elements.

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In known fashion, browser page 10 and document page 12 can be displayed in tiled or cascaded windows on a single monitor, such that the user may access either.

5 A URL hyperlink in accordance with the present invention can be created as a new object (e.g., a graphics figure or text) or assigned to an existing object. With a figure-based hyperlink, a user can click anywhere within the figure's bounding box area to invoke a jump to the designated destination. In the preferred embodiment, with a text-based URL hyperlink, a jump will be invoked only when the user clicks on the specific characters that are associated with the URL hyperlink.

#### Description of Flowchart

10 FIGURE 2 is a flowchart showing a preferred method of creating a URL hyperlink by dragging and dropping. While using a program implementing the invention, a user selects an object (e.g., an icon or graphics figure) from a browser page 10 having an associated URL (STEP 200). The URL, as provided by a browser program, is made available for dropping by the system software, in known fashion (STEP 202).

15 Using conventional techniques, the user "drags" (e.g., by holding down a mouse button and moving the mouse) the selected object to a document page 12 until the computer display cursor is positioned over an existing object, such as figure or text, or a blank area (STEP 204). For convenience, the cursor may be changed to indicate that a URL is being dragged. The user then drops the dragged object (e.g., by releasing the mouse button)  
20 (STEP 206).

At this point, the program implementing the invention queries the system software, in known fashion, for the type of data being dropped (in this case, a URL) (STEP 208). Having identified the data type as "URL", the URL is added to a list of URL bookmarks kept within or associated with the document page 12 (STEP 210). Bookmark lists are  
25 well-known, such as in the WordPerfect program mentioned above. In the preferred

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When URLs are dropped onto existing graphic figures, the resulting action is that of "applying" the URL hyperlink to the graphic. The advantage of this approach is that the drag-drop process allows the user to transfer the URL information to the target graphic without needing to separate the URL from its originating content. In other words, within the browser page 10, the URL exists as a property of an object of the browser page 10; transferring the URL to an object in the document page 12 does not require the URL to be separated visually from the browser page object. Thus, an object in the document page 12 takes on the same property as the object in the browser page 10. The URL as an independent visual entity need not exist. In addition, there is no need to create some default display proxy (e.g., an independent icon) to represent the URL.

URL hyperlinks can be created manually by permitting the user to select a figure or text within a figure and open a dialog to enter a URL as a property of the selected object. Another method is to permit the user to use a hyperlink tool from a Tool palette and draw an invisible rectangle around an area the user wishes to be a hyperlink. A dialog then opens to let the user define the URL to be used. The user can use this tool, for example, to define hot spots on a bitmap to create an image map having several URL hyperlinks.

While URL hyperlinks have been described, programs implementing the present invention may also use conventional intra-document and inter-document hyperlinks.

#### Implementation

The invention may be implemented in hardware or software, or a combination of both. However, preferably, the invention is implemented in computer programs executing on programmable computers each comprising a processor, a data storage system (including volatile and non-volatile memory and/or storage elements), at least one input device, and at least one output device. Program code is applied to input data to perform the functions described above and generate output information. The output information is applied to one or more output devices, in known fashion.

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## CLAIMS

What is claimed is:

1. A method of creating a document hyperlink, comprising the steps of:
  - (a) selecting a first object having an associated hyperlink;
  - (b) dragging the hyperlink to a selected location on a document page;
  - (c) dropping the hyperlink onto the selected location;
  - (d) determining if the selected location includes a pre-existing document object, and:
    - (1) if so, setting a property associated with the pre-existing document object to the value of the dropped hyperlink, thereby linking the pre-existing document object to the first object;
    - (2) if not, copying at least part of the first object into the document page as a new document object and setting a property associated with the new document object to the value of the dropped hyperlink, thereby linking the new document object to the first object.
2. The method of claim 1, further including the step of adding the dropped hyperlink to a list of bookmarks associated with the document page after dropping the hyperlink.
3. The method of claim 1, wherein the first object is a browser page object.
4. The method of claim 1, wherein the hyperlink is a universal resource locator.
5. The method of claim 1, further including the step of visually marking the pre-existing or new document object to indicate that such document object is linked to the first object by means of the hyperlink.

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- 1 8. A computer program, residing on a computer-readable medium, for creating a  
2 document hyperlink, comprising instructions for causing a computer to:  
3 (a) select a first object having an associated hyperlink;  
4 (b) drag the hyperlink to a selected location on a document page;  
5 (c) drop the hyperlink onto the selected location;  
6 (d) determine if the selected location includes a pre-existing document object, and:  
7 (1) if so, set a property associated with the pre-existing document object to  
8 the value of the dropped hyperlink, thereby linking the pre-existing  
9 document object to the first object;  
10 (2) if not, copy at least part of the first object into the document page as a new  
11 document object and set a property associated with the new document  
12 object to the value of the dropped hyperlink, thereby linking the new  
13 document object to the first object;  
14 (e) after dropping the hyperlink, add the dropped hyperlink to a list of bookmarks  
15 associated with the document page.
- 1 9. The program of claim 8, further comprising instructions for causing a computer to  
2 add the dropped hyperlink to a list of bookmarks associated with the document page  
3 after dropping the hyperlink.
- 1 10. The program of claim 8, wherein the first object is a browser page object.
- 1 11. The program of claim 8, wherein the hyperlink is a universal resource locator.
- 1 12. The program of claim 8, further comprising instructions for causing a computer to  
2 visually mark the pre-existing or new document object to indicate that such  
3 document object is linked to the first object by means of the hyperlink.



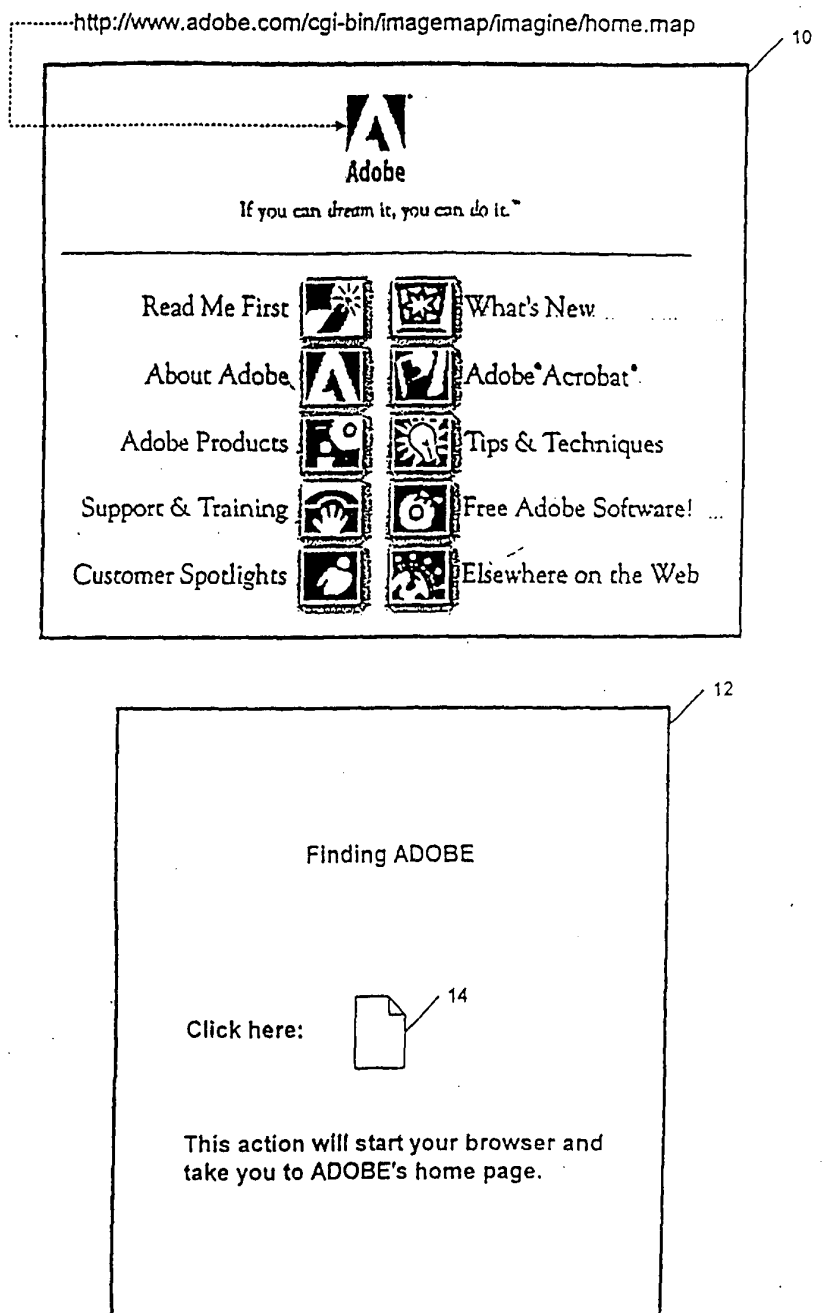


FIG. 1